

Exhibit B

Woodward Yang

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Education:

Massachusetts Institute of Technology
Ph.D. in Electrical Engineering and Computer Science
Thesis: ``The Architecture and Design of CCD Processors for Computer Vision"

August 1990

Massachusetts Institute of Technology
S.M. in Electrical Engineering and Computer Science
Thesis: ``Low Pressure Nitrided Oxide in MOS Capacitors"

January 1987

University of California, Berkeley
B.S. in Electrical Engineering and Computer Science

May 1984

Research and Professional Experience:

Professor of Electrical Engineering and Computer Science
School of Engineering and Applied Sciences, Harvard University
Gordon McKay Professor
Associate Professor
Assistant Professor

September 1997 - present
September 1994 - 1997
September 1990 - 1994

Analysis, design and implementation of microelectronic circuits and VLSI systems.
Teaching and curriculum planning in electrical engineering and computer science.

Founder and Program Director
Master in Design Engineering at Harvard University
Collaborative 2-year degree program at Harvard Graduate School of Design and School of Engineering and Applied Sciences

September 2015 - present

HBS University Fellow and Visiting Professor
Harvard Business School
Research and teaching in disruptive innovation, technology transfer, and industry evolution.

September 2008 – May 2012

Founder and CEO
Silicon7, Incorporated
Seongnam-si, Kyoungki-do, KOREA
Application Specific Memory products for mobile communications and computing platforms.

March 2000 – March 2008

Science and Technology Board Member
Polaroid Corporation, Cambridge, Massachusetts
Evaluation of research and technology developments.

June 1998 – June 2001

Consultant and Senior Fellow Hyundai Electronics Industries, Ichon, Korea Development of high performance CMOS image sensor technology for embedded image sensing and processing applications. Research on advanced DRAM design and merged memory logic (MML) technology for advanced computer systems.	August 1995 – March 2000
Consultant Hamamatsu Photonics K.K., Hamamatsu City, Japan Development of smart image sensors and CCD/CMOS analog charge-domain circuitry.	December 1993 - June 1998
Consultant Istituto per la Ricerca Scientifica e Tecnologica (IRST), Trento, Italy Research and development of advanced CMOS/CCD technology and circuitry.	June 1991 - December 1993
Consultant M.I.T. Lincoln Laboratory, Dr. Alice M. Chiang, Advisor Design and implementation of CCD image sensors and analog signal processors.	June 1988 - August 1990
Research Assistant M.I.T. Artificial Intelligence Laboratory, Professor Tomaso Poggio, Advisor Implementation of analog VLSI hardware for computer vision.	September 1987 - August 1990
Research Assistant M.I.T. Microsystems Technology Laboratory, Professor Charles G. Sodini, Advisor Development and characterization of low pressure ammonia and oxygen annealing process for improved reliability of scaled MOS transistors.	September 1984 - August 1987
Research Assistant U.C. Berkeley Electronic Research Laboratory, Professor Chenming Hu, Advisor Measurement and analysis of hot electron degradation in MOS transistors.	January 1983 - May 1984

Honors and Awards:

National Science Foundation Young Investigator Award	1992
Army Research Office Young Investigator Award	1992
Hertz Foundation Fellowship	1984 – 1990
National Science Foundation Fellowship	1984
University of California Alumni Scholarship	1980 - 1984
Phi Beta Kappa, Eta Kappa Nu, Tau Beta Pi	1984

Patents:

Method and Charge--Coupled Apparatus for Algorithmic Computations, Woodward Yang, May 12, 1992, U.S. Patent No. 5,113,365.

Image Sensor Array With Threshold Voltage Detectors and Charged Storage Capacitors, Woodward Yang, May 25, 1993, U.S. Patent No. 5,214,274.

Error Correcting Sigma-Delta Modulation Decoding, Philip Steiner and Woodward Yang, November 17, 1998, U.S. Patent No. 5,838,272.

CMOS image sensor with equivalent potential diode, Woodward Yang, Ju Il Lee and Nan Yi Lee, February 26, 1999, US Patent No. 6,180,969.

CMOS image sensor with equivalent potential diode and method for fabricating the same, Woodward Yang, Ju Il Lee and Nan Yi Lee, February 26, 1999, US Patent No. 6,184,055.

CMOS image sensor with testing circuit for verifying operation thereof, Oh Bong Kwon, Woodward Yang, Suk Joong Lee, and Gyu Tae Hwang, February 26, 1999, US Patent No. 6,633,335.

Antifuse circuitry for post-package DRAM repair, Woodward Yang, et al., January 10, 2000, US Patent No. 6,240,033.

Image sensor with analog-to-digital converter that generates a variable slope ramp signal, Kang Jin Lee, Chan Ki Kim, Jae Won Eom and Woodward Yang, February 8, 2001, US Patent No. 6,545,624.

Error-correcting circuit for high density memory, Elaine Ou and Woodward Yang, June 9, 2009, US Patent No. 7,546,517.

Selected Presentations, Interviews and Invited Lectures:

"Chip Industry must learn not to overshoot," EE Times cover page, interview and commentary, June 6, 2006.

"Disruptive Innovation," Keynote Speaker at Consumer Electronics Show, January 2006.

"Using DRAM Technology to Make SRAM," The Weekly Economist interview, September 24, 2002.

"Silicon7 8-Mbit SRAM sports single-transistor cell," EE Times interview, September 2001.

"Hyundai modifies DRAM process to produce CMOS image sensors," EE Times interview, March 1999.

"Merged Memory Logic," W. Yang, IEEE Solid-State Circuits Society Distinguished Lecturer, Hanyang University, Korea, March 1999.

"The Dawn of Billion Transistor Chips," W. Yang, 1998 Korea - U.S. Science and Technology Symposium: Computing and Telecommunication, Chicago, April 1998.

"Innovation in Microelectronic Manufacturing," W. Yang, National Research Council Workshop on the Electronics Industry, November 1997.

"Trends in Electronic Image Sensing and Processing," IEEE Laser and Electro Optical Society, Lincoln, MA, March 1996.

Selected Depositions and Trial Testimonies:

In the matter of CERTAIN ELECTRONIC DEVICES, INCLUDING MOBILE PHONES, PORTABLE MUSIC PLAYERS, AND COMPUTERS (ITC, Investigation No. 337-TA-701, deposition and trial) – retained by Nokia

In the matter of APPLE, INC. vs. SAMSUNG ELECTRONICS COMPANY, LTD. (United State District Court, Northern District of California, Civil Action No. 11-CV-01846-LHK, deposition and trial) – retained by Samsung

In the matter of CERTAIN CONSUMER ELECTRONICS WITH DISPLAY AND PROCESSING CAPABILITIES, (ITC, Investigation No. 337-TA-885, deposition and trial) – retained by Toshiba

In the matter of CERTAIN GRAPHICS PROCESSING CHIPS, SYSTEMS ON A CHIP, AND THE PRODUCTS CONTAINING THE SAME, (ITC, Investigation No. 337-TA-941, deposition and trial) – retained by NVidia

In the matter of US Patent 6,418,310 (US Patent and Trademark Office, Patent Trial and Appeal Board, IPR2015-05183, deposition) – retained by Ericsson Inc.

Publications:

"Cambridge NanoTech," Woodward Yang and David Kiron, Harvard Business School Case Study 9-610-083, Boston, MA, Harvard Business School, May 2010.

"Science and Technology Entrepreneurship for Greater Societal Benefit: Ideas for Curricular Innovation," Fleming, Lee, Woodward Yang, and John Golden in **Spanning Boundaries and Disciplines: University Technology Commercialization in the Information Age**, edited by Gary D. Libecap, Marie Thursby and Sherry Hoskinson, Emerald Group Publishing Limited, 2010.

"The New Economics of Semiconductor Manufacturing," Clayton Christensen, Steve King, Matt Verlinden and Woodward Yang, **IEEE Spectrum**, vol. 45, issue 5, pp. 24-29 May 2008.

"Energy Consumption Model for Power Management in Wireless Sensor Networks," Qin Wang and Woodward Yang, *IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks SECON 2007*, June 2007.

"A Realistic Power Consumption Model for Wireless Sensor Network Devices," Qin Wang, Mark Hempstead and Woodward Yang, *IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks SECON 2006*, September 2006.

"Fast Error-Correcting Circuits for Fault-Tolerant Memory," E. Ou and W. Yang, *IEEE International Workshop on Memory Technology, Design and Testing*, pp. 8-12, August 2004.

"A Low-Power 256-Mb SDRAM with an On-Chip Thermometer and Biased Reference Line Sensing Scheme," J.P. Kim, W. Yang, and H.-Y. Tan, **IEEE Journal of Solid-State Circuits**, vol. 38, no. 2, pp. 329-337, February 2003.

"An Antifuse EPROM Circuitry Scheme for Field-Programmable Repair in DRAM," J.K. Wee, W. Yang, E.K. Ryou, J.S. Choi, S.H. Ahn, J.Y. Chung and S.C. Kim, **IEEE Journal of Solid-State Circuits**, vol. 35, no. 10, pp. 1408-1414, October 2000.

"An Embeddable Low Power SIMD Processor Bank," S.-H. Hong and W. Yang, *Digest of Technical Papers of IEEE International Solid-State Circuits Conference*, pp. 192-193, February 2000.

"Antifuse EPROM Circuit for Field Programmable DRAM," J.-S. Choi, J.-K. Wee, P.-J. Kim, J.-K. Oh, C.-H. Lee, H.-Y. Cho, J.-Y. Chung, S.-C. Kim and W. Yang, *Digest of Technical Papers of IEEE International Solid-State Circuits Conference*, pp. 406-407, February 2000.

"A Novel Double Slope Analog-to-Digital Converter for a High-Quality 640 x 480 CMOS Imaging System," O.-B. Kwon, K.-N. Park, D.-Y. Lee, K.-J. Lee, S.-C. Jun, C.-K. Kim, and W. Yang, *6th International Conference on VLSI and CAD 1999*, pp. 335-338, Seoul, Korea, October 1999.

"An Improved Digital CMOS Imager," O.-B. Kwon, K.-N. Park, D.-Y. Lee, K.-J. Lee, S.-C. Jun, C.-K. Kim, Y.-B. Lee and W. Yang, *IEEE Workshop on Charged-Coupled Devices and Advanced Image Sensors*, Nagano, Japan, June 1999.

"A Linear-Response, High-Dynamic Range CMOS Imager Suitable for Spectroscopic Applications," D. Qian and W. Yang, *IEEE Workshop on Charged-Coupled Devices and Advanced Image Sensors*, Nagano, Japan, June 1999.

"New Self Refresh Scheme Using Cell Leakage Monitoring Circuit," Y.-H. Seol, H.-Y. Cho, J.-K. Wee, D.-H. Ryu, J.-G. Oh, J.-S. Choi, J.-J. Lee, J.-H. Lee, and W. Yang, (in Korean) *Proceedings of the 6th Korean Conference on Semiconductors*, pp. 377-378, Seoul, Korea, February 1999.

"High Voltage Circuitry for Post Package DRAM Repair," P.-J. Kim, J.-G. Oh, J.-K. Wee, D.-H. Ryu, Y.-H. Seol, H.-Y. Cho, J.-S. Choi, J.-H. Han, J.-H. Lee, and W. Yang, (in Korean) *Proceedings of the 6th Korean Conference on Semiconductors*, pp. 385-386, Seoul, Korea, February 1999.

"An Integrated 800 x 600 CMOS Imaging System," W. Yang, O.-B. Kwon, J.-I. Lee, G.-T. Hwang and S.-J. Lee, *Digest of Technical Papers of IEEE International Solid-State Circuits Conference*, pp. 304-305, February 1999.

"VLSI Hardware for Example-Based Learning," A. Lipman and W. Yang, **IEEE Transactions on VLSI Systems**, vol. 5, no. 3, pp. 320-328, September 1997.

"A Reconfigurable VLSI Coprocessing System for the Block Matching Algorithm," A. Bugeja and W. Yang, **IEEE Transactions on VLSI Systems**, vol. 5, no. 3, pp. 329-337, September 1997.

"A CCD/CMOS Image Sensor Array with Integrated A/D Conversion," M. Gottardi and W. Yang, *Proceedings of the IEEE International Symposium on Circuits and Systems*, Vol. III, pp. 1908-1911, June 1997.

"Circuit integration pushes image sensor performance," W. Yang, **Laser Focus World**, Penwell Publishing, pp. 129-139, February 1997.

"A Framework for Analysis of High Order Sigma-Delta Modulators," P. Steiner and W. Yang, **IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing**, vol. 44, no. 1, pp. 1-12, January 1997.

"Competitive learning algorithms for channel optimized vector quantizers," D. Martinez and W. Yang, *The 1996 IEEE International Conference on Neural Networks*, pp. 1462-1467, June 1996.

"Stability of High Order Sigma-Delta Modulators," P. Steiner and W. Yang, *Proceedings of IEEE International Symposium on Circuits and Systems*, Vol. III, pp. 52-57, May 1996.

"Simple Pulse Asynchronous State Machines," J. Miller and W. Yang, *Proceedings of IEEE International Symposium on Circuits and Systems*, Vol. III, pp. 405-409, May 1996.

"Neuromorphic CMOS Circuitry for Active Bidirectional Delay Lines," W. Yang, *Proceedings of IEEE International Symposium on Circuits and Systems*, Vol. III, pp. 473-476, May 1996.

"A Robust Backward Adaptive Quantizer," D. Martinez and W. Yang, *Proceedings of IEEE Workshop on Neural Networks for Signal Processing V*, pp. 531-540, August 1995.

"A Real-Time Face Recognition System Using Machine Vision Techniques," W. Yang, invited paper, *CardTech/SecurTech Conference Proceedings*, pp. 179-193, April 1995.

"Stability Analysis of the Second Order Sigma-Delta Modulator," P. Steiner and W. Yang, *Proceedings of IEEE International Symposium on Circuits and Systems*, Vol. V, pp. 365-368, June 1994.

"An Interline CCD Imaging Array with On-Chip A/D Conversion," D. J. Friedman and W. Yang, *Proceedings of SPIE, Charge-Coupled Devices and Solid State Optical Sensors IV*, vol. 2172, pp. 54-63, February 1994.

"A Wide Dynamic Range, Low Power Photosensor Array," W. Yang, *Digest of Technical Papers of IEEE International Solid-State Circuits Conference*, pp. 230-231, February 1994.

"A Real-Time Face Recognition System Using Custom VLSI Hardware," J.M. Gilbert and W. Yang, *Proceedings of IEEE Workshop on Computer Architectures for Machine Perception*, pp. 58-66, December 1993.

"A CCD/CMOS Image Motion Sensor," M. Gottardi and W. Yang, *Digest of Technical Papers of IEEE International Solid-State Circuits Conference*, pp. 194-195, February 1993.

"Analog CCD Processors for Image Filtering," W. Yang, *Proceedings of SPIE, Visual Information Processing: From Neurons to Chips*, vol. 1473, pp. 114-127, April 1991.

``The MIT Vision Chip Project: Analog VLSI Systems for Fast Image Acquisition and Early Vision Processing," J.L. Wyatt, D.L. Standley, and W. Yang, *Proceedings of the International Conference on Robotics and Automation*, vol. 2, pp. 1330-1335, April 1991.

``A Full Fill--Factor CCD Imager with Integrated Signal Processors," W. Yang and A.M. Chiang, *Digest of Technical Papers of International Solid--State Circuits Conference*, pp. 218-219, February 1990.

``A Charge--Coupled Device Architecture for On Focal Plane Image Signal Processing," W. Yang, *Proceedings of International Symposium on VLSI Technology, Systems, and Applications*, pp. 266-270, May 1989.

``Optical Flow: Computational Properties and Networks, Biological and Analog," Tomaso Poggio, Woodward Yang, and Vincent Torre, **The Computing Neuron**, R. Durbin, C. Maill, and G. Mitchison (editors), pp. 255-370, Addison--Wesley, New York, 1989.

``Optimization of Low Pressure Nitridation/Oxidation of SiO₂ for Scaled MOS Devices," W. Yang, R. Jayaraman, and C.G. Sodini, **IEEE Transactions on Electron Devices**, vol. ED-35, no. 7, pp. 935-944, July 1988.

``Radiation Effects in Low Pressure Reoxidized Nitrided Oxide Gate Dielectrics," G. Dunn, R. Jayaraman, W. Yang, and C.G. Sodini, **Applied Physics Letters**, vol. 52, no. 20, pp 1713-1715, May 1988.

``The MIT Vision Machine," T. Poggio, J. Little, E. Gamble, W. Gillet, D. Geiger, D. Weinshall, M. Villalba, N. Larson, T. Cass, H. Bulthoff, M. Drumheller, P. Oppenheimer, W. Yang, and A. Hurlbert, *DARPA Image Understanding Workshop*, pp. 177-198, April 1988.

``MOS Electrical Characteristics of Low Pressure Re--oxidized Nitrided Oxide," R. Jayaraman, W. Yang, and C.G. Sodini, *Technical Digest of International Electron Devices Conference*, pp. 668-671, December 1986.

``Hot Carriers Induced Degradation in Thin Gate Oxide MOSFET's," M--S. Liang, C. Chang, W. Yang, C. Hu, and R.W. Brodersen, *Technical Digest of International Electron Devices Conference*, pp. 186-189, December 1983.

Additional Patent Consulting Work between 2012 to present (not mentioned in CV)
Woodward Yang (as of January 2019)

In the matter of Imperium Holdings, Inc. v Apple, Kyocera Communication, Inc., LG Electronics, USA, Inc, LG Electronics Mobilecomm, USA, Inc, Motorola Mobilecomm USA, Motorola Mobility, Inc., Nokia Inc, Research in Motion Corporation, and Sony Ericsson Mobile Communications (USA), Inc., (United States District Court, Eastern District of Texas, Sherman Division, Case No. 4:11-cv-163-RC-ALM, deposition) – retained by Nokia

In a confidential matter (2013-2015) related to four patents related to semiconductor image sensors
6,023,081 Semiconductor Image Sensor
6,221,686 Method of making a semiconductor image sensor
6,979,587 Image sensor and method for fabricating the same
7,365,298 Image sensor and method for manufacturing the same

In a matter of Radiancy, Inc., v. Viatek Consumer Products Group, Inc. (United States District Court, Southern District of New York, Case No. 13 Civ. 3767-NSR-LMS, deposition) – retained by Radiancy

In a confidential matter (2016) related to two patents for an automobile manufacturer
6,339,428 Method and Apparatus for Compressed Texture Caching in a Video Graphics System
7,254,721 System and Method for Controlling an Integrated Circuit to Enter Predetermined Performance State by Skipping All Intermediate States Based on the Determined Utilization of the Integrated Circuit

In a confidential matter (2017) related to various patents related to semiconductor packaging technology for Latham & Watkins

In the matter of Godo Kaisha IP Bridge I v. OmniVision Technologies (Case No. 1:16-cv-00290-JFB-SRF and 5-17-cv-00778-BLF-SVK and Japan Customs with regard to Japanese Patent J3562628) and Collabo Innovations, Inc. v OmniVision Technologies (Case No. 1:16-cv-00197-JFB-SRF) – retained by Omnivision Technologies

In the matter of Magna Electronics Inc v. Valeo North America Inc, Valeo SA, Valeo GMBH, Vale Schalter und Sensoren GMBH, Connaught Electronics Ltd. (United States District Court, Eastern District of Michigan Southern Division, Case No. 2:13-cv-11376) – retained by Magna Electronics – ON GOING